Setting Regional Strategies for Invasive Plant Management Using CalWeedMapper

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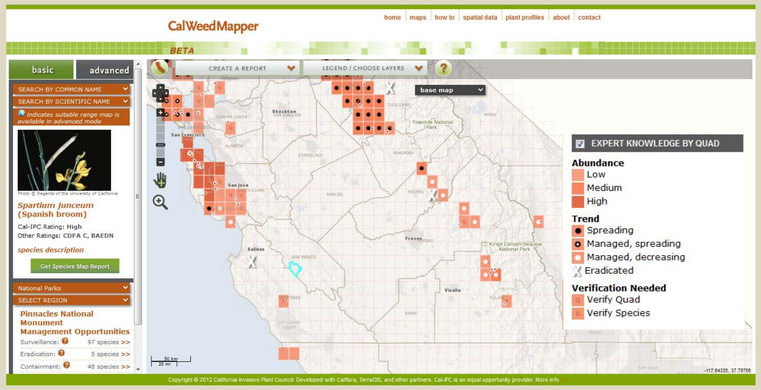
Cal-IPC is working with partners in several regions of California to develop consensus strategies based on CalWeedMapper, our online mapping tool that incorporates expert knowledge and occurrence data on >200 invasive plants statewide. We're charting a strategic course to help regions be shovel-ready to apply for funding for high priority eradication targets. We are actively supporting several types of regions, including counties, Weed Management Areas, National Parks, National Forests, State Parks and watersheds.

http://calweedmapper.calflora.org

Data

CalWeedMapper combines two types of data: expert knowledge and occurrences (GIS). GIS datasets provide specific population locations. Expert knowledge fills in gaps in quantitative datasets and adds information on population trends and management programs. These data are also linked to existing online occurrence databases from Calflora and the Consortium of California Herbaria (CCH).



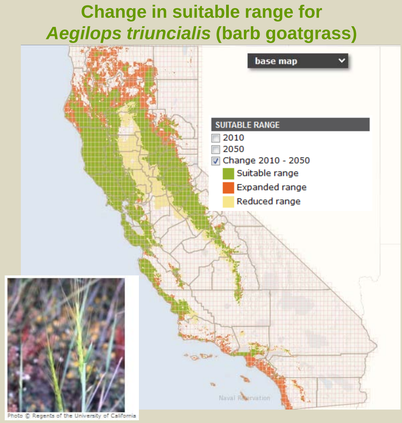
Spartium junceum (Spanish broom)

Potential Spread

CalWeedMapper also maps suitable range based on climate. This suitable range information can help managers assess the potential for future spread of a species. This modeling uses Maxent modeling software, occurrence data documenting where the plant currently grows in California, and climate data for California.

CalWeedMapper displays suitable range in 2010, projected suitable range in 2050, and the expansion or reduction in range between those dates. Our projections are based on climate only and do not consider factors such as soil, habitat, and dispersal.

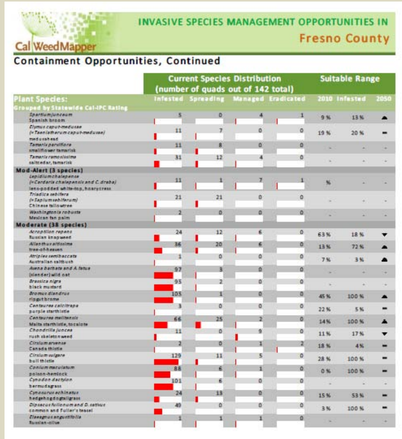
Change in suitable range for *Aegilops triuncialis* (barb goatgrass)



Management Opportunities

CalWeedMapper is designed to increase the effectiveness of invasive plant management by providing landscape scale maps that serve as the basis for setting regional priorities, tracking progress and justifying funding.

Land managers can see management opportunities for their region divided into surveillance, eradication or containment targets. These reports are derived from maps of current distribution combined with projected suitable range for 2010 and 2050 climate conditions. Land managers can download reports at several scales, including counties, Weed Management Areas, Ecoregions, Jepson Regions, National Parks, National Forests, National Wildlife Refuges, State Parks and watersheds.



Surveillance opportunities: when a plant is not found within the region, but is found within 50 miles. The proximity of neighboring populations and the suitability of the region can inform an assessment of the likelihood of establishment. Regular surveillance is important for early detection.

Eradication opportunities: when a plant exists in the region but only in small isolated populations. The spatial pattern for eradication is 1 infested quad surrounded by at least 2 concentric bands of absent quads. The size and isolation of populations and the suitability of the region can inform an assessment of the strategic importance and feasibility of eradication.

Containment opportunities: when a plant exists in the region and is too widespread for eradication. The strategic importance and feasibility of a containment opportunity can be further assessed based on how distinct the boundaries of the infestation are, how isolated it is, and the suitability of the surrounding area.

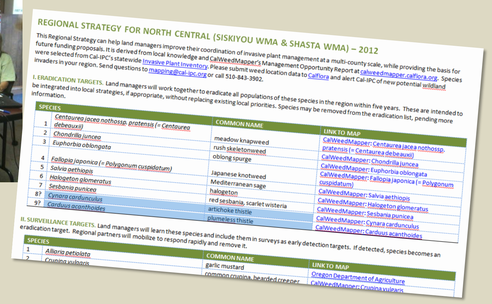
CalWeedMapper BETA

Regional Strategies

Cal-IPC works with land managers to use CalWeedMapper to devise regional strategic management plans. This landscape level collaborative planning takes place in regions covering multiple counties. The goal is to focus on a handful of early detections species within a region and work collaboratively as region for eradication. Land managers are also encouraged to practice surveillance for species of concern that have been identified as absent from the region but occurring within 50 miles.

Steps in regional strategy:

1. Translate information from CalWeedMapper to **regionwide** opportunities for surveillance & eradication
2. Draft **Strategic Plan** for review by land managers
3. **Eradication** targets: apply for funding to address top regional species
4. **Surveillance** targets: learn and survey for early detection and rapid response
5. Watch for **new detections** of these species submitted to Calflora!


REGIONAL STRATEGY FOR NORTH CENTRAL (SISKIYOU WMA & SHASTA WMA) – 2012

This Regional Strategy can help land managers improve their coordination of invasive plant management at a multi-county scale, while providing the basis for future funding proposals. It is derived from local knowledge and CalWeedMapper's Management Opportunity Report at calweedmapper.calflora.org. Species were selected from Cal-IPC's statewide Invasive Plant Inventory. Please submit weed location data to Calflora and alert Cal-IPC of new potential wildland invaders in your region. Send questions to mapping@cal-ipc.org or call 510-843-3902.

I. ERADICATION TARGETS. Land managers will work together to eradicate all populations of these species in the region within five years. These are intended to be integrated into local strategies, if appropriate, without replacing existing local priorities. Species may be removed from the eradication list, pending more information.

	SPECIES	COMMON NAME	LINK TO MAP
1	Centaurea jacea nothossp. pratensis (= Centaurea debeauxii)	meadow knapweed	CalWeedMapper: Centaurea jacea nothossp. pratensis (= Centaurea debeauxii)
2	Chondrilla juncea	rush skeletonweed	CalWeedMapper: Chondrilla juncea
3	Euphorbia oblongata	oblong spurge	CalWeedMapper: Euphorbia oblongata
4	Fallopia japonica (= Polygonum cuspidatum)	Japanese knotweed	CalWeedMapper: Fallopia japonica (= Polygonum cuspidatum)
5	Salvia aethiopis	Mediterranean sage	CalWeedMapper: Salvia aethiopis
6	Halogeton glomeratus	halogeton	CalWeedMapper: Halogeton glomeratus
7	Sesbania punicea	red sesbania, scarlet wisteria	CalWeedMapper: Sesbania punicea
87	Cynara cardunculus	artichoke thistle	CalWeedMapper: Cynara cardunculus
97	Carduus acanthoides	plumeless thistle	CalWeedMapper: Carduus acanthoides

II. SURVEILLANCE TARGETS. Land managers will learn these species and include them in surveys as early detection targets. If detected, species becomes an eradication target. Regional partners will mobilize to respond rapidly and remove it.

	SPECIES	COMMON NAME	LINK TO MAP
1	Alliaria petiolata	garlic mustard	Oregon Department of Agriculture
2	Coronopus squamatus	common coronopus, heartpod cress	CalWeedMapper: Coronopus squamatus

Above: Shasta and Siskiyou counties (North Central region) meet to discuss a strategic plan based on information from CalWeedMapper, July 2012. Right: Excerpt from Regional Strategy

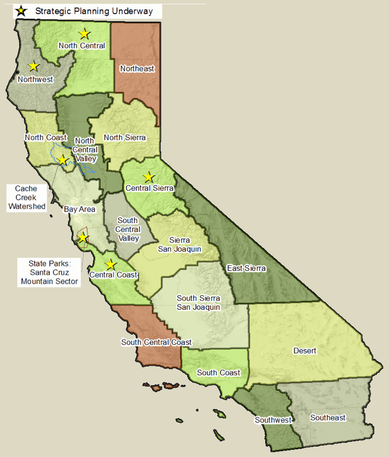
Regions in Progress

Central Sierra counties: Alpine, Amador, Calaveras, El Dorado, and Tuolumne prioritized 10 eradication and 15 surveillance targets. Used this information in proposal to the National Fish and Wildlife Foundation.

Central Coast counties: Monterey, Santa Cruz and San Benito WMAs identified 8 eradication and 8 surveillance targets in a strategic plan. A presentation of these species is under development for upcoming WMA meetings and an eradication workplan has been drafted.

North Central counties: Siskiyou and Shasta WMAs have identified 9 eradication and 15 surveillance targets and have a draft strategic plan. An eradication workplan is being drafted.

Northwest counties: Del Norte, Humboldt and Trinity WMAs have identified 12 eradication and 17 surveillance targets. Shasta-Trinity National Forest using both Northern California plans to inform their management planning as a part of Wilderness Stewardship Challenge. An eradication workplan is under construction.



Draft regions for invasive plant strategic plans (above).

… with **more coming in 2013!**

… stay tuned via a new CalWeedMapper **regions** page!

Additional regions using a CalWeedMapper approach:

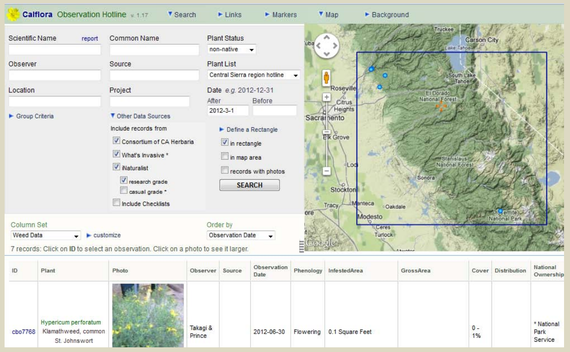
Cache Creek Watershed Forum: Developed a strategic plan of weed management priorities for their area of Yolo and Lake Counties.

State Parks Early Detection Regions: Identified surveillance species for field personnel in Santa Cruz Mountain District. Will test method on additional district in S. California.

Next Steps

We expect to complete plans for at least six regions in 2013, and to incorporate a strategic approach into planning in two State Park sectors, 2 National Parks and the Shasta-Trinity NF. Regions with Strategic Plans can use their regional Weed Hotlines to watch for new occurrences of priority species reported in their region.

In addition, the California Department of Fish and Game has expressed interest in incorporating CalWeedMapper's information in the new update of the state's Wildlife Action Plan.



Calfora's regional Weed Hotline is used to watch for new priority occurrences reported in the region.

In 2012-13, we will develop an online version of an invasive plant prioritization tool called WHIPPET. This tool will link to CalWeedMapper and the Cal-IPC Invasive Plant Inventory, providing land managers with the ability to upload their own data, download other data from CalWeedMapper, and receive a prioritized list to help them choose the most important populations on which to focus based on locations and the species' biology.

Acknowledgments

American Recovery and Reinvestment Act funding provided by the USDA Forest Service, State and Private Forestry Program through the California Department of Food & Agriculture. Additional funding from the California Landscape Conservation Cooperative, USDA Forest Service Special Technology Development Program, National Fish and Wildlife Foundation, Shasta-Trinity National Forest, National Forest Foundation, State Parks, Resources Legacy Fund, and Richard and Rhoda Goldman Fund.

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